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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,195	07/19/2001	Kouichi Saitou	35061-02500	9740

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New York, NY 10005-1413

EXAMINER

MACCHIAROLO, PETER J

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/909,195

Applicant(s)

SAITOU ET AL.

Examiner

Peter J Macchiarolo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The abstract of the invention is objected to because it is not written in idiomatic English. As an example, the Examiner recommends amending line 5 from, "The neck outer diameter..." to "The outer diameter of the neck..." Applicant is further reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The Examiner points out paragraph [0010] as an example of awkward sentence structure. The substitute specification filed must be accompanied by a statement that it contains no new matter.

*Priority*

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) to JP-2001-159789 filed on May 29, 2001.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 4-8, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nose et al. (USPN 5,994,830) in view of Van Engelshoven et al. (USPN 6,271,625).

In regards to claim 1, Nose discloses in figure 7, a projection tube comprising a panel (20) which forms a phosphor screen (23) on an inner surface thereof, a funnel (22), a neck portion (21) and a stem portion (14) which seals the neck portion, and the electron gun emits a

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single electron beam to the phosphor screen (Bs). Nose further discloses in figure 3, the neck has a first portion connected to the funnel portion and has a first neck outer diameter (D), and a second neck portion constitutes a portion which accommodates an electron gun and has a second neck outer diameter (D'). Further, the first neck outer diameter is set smaller than the second neck outer diameter.

Nose is silent to a maximum operating voltage of the electron gun is set to equal to or more than 25 kV.

However, Van Engelshoven et al. teaches in column 4 lines 7-29 that the last electrode (45) operates at 30-35 kV, and this inhibits spherical aberrations.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nose's maximum operating voltage of the electron gun to 25kV, since it is well known in the art that inhibiting spherical aberrations is desired.

In regards to claim 2, Nose in view of Van Engelshoven teach all of the recited limitations of claim 1 (above). Further, Van Engelshoven teaches in column 4 lines 7-29 that the last electrode (45) operates at 30-35 kV, and this inhibits spherical aberrations.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 1 (above), further wherein the maximum operating voltage is set to equal to or more than 30 kV, since it is well known in the art that inhibiting spherical aberrations is desired.

In regards to claim 4, Nose in view of Van Engelshoven teach all of the recited limitations of claim 1 (above). Further, Nose teaches in column 3 lines 17-42, that when the first neck outer diameter is less than 29.1mm, this configuration can prevent occurrence of cracks in the fused portion of the stem.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 1 (above), further wherein the first neck outer diameter is set to equal to or less than 29.1 mm, since it is well known in the art that preventing cracks in the fused portion of the stem is desired.

In regards to claim 5, Nose in view of Van Engelshoven teach all of the recited limitations of claim 4 (above).

Neither Nose or Van Engelshoven specifically teach an second neck portion outer diameter set to equal to or more than 36.5 mm.

However, Nose does teach in column 3 lines 25-29, that a larger second neck portion is required to accommodate a higher-powered large pin-circle stem into a second neck portion, and a portion of the electron gun, without cracking. Nose further teaches in column 7 lines 37-41, that the diameter  $D'$  of the expanded fuse portion (second neck portion) is about 1.1 times greater then the outside diameter  $D$  of the neck (first neck portion). In table 1, Nose teaches that the diameter  $D$  is 29.1 mm, which makes  $D'$  be about 32.0.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 4 (above), further wherein the second neck outer diameter is set to equal to or more than 36.5 mm. The second

neck portion outer diameter is dependent on the interior structure of the electron gun, and the pin-circle. One of ordinary skill in the art would be motivated to choose to design a second neck outer diameter equal to or more than 36.5 mm if the electron gun and pin-circle stem could not fit into a smaller diameter, as shown by the Applicant in figure 1.

In regards to claim 6, Nose in view of Van Engelshoven teach all of the recited limitations of claim 1 (above).

Nose further teaches in column 3 lines 17-42, that when the first neck outer diameter is less than 29.1mm, this configuration can prevent occurrence of cracks in the fused portion of the stem.

Neither Nose or Van Engelshoven specifically teach an second neck portion outer diameter set to equal to or more than 36.5 mm.

However, Nose does teach in column 3 lines 25-29, that a larger second neck portion is required to accommodate a higher-powered large pin-circle stem into a second neck portion, and a portion of the electron gun, without cracking. Nose further teaches in column 7 lines 37-41, that the diameter  $D'$  of the expanded fuse portion (second neck portion) is about 1.1 times greater then the outside diameter  $D$  of the neck (first neck portion). In table 1, Nose teaches that the diameter  $D$  is 29.1 mm, which makes  $D'$  be about 32.0.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 1 (above), further wherein the second neck outer diameter is set to equal to or more than 36.5 mm. The second neck portion outer diameter is dependent on the interior structure of the electron gun, and the

pin-circle. One of ordinary skill in the art would be motivated to choose to design a second neck outer diameter equal to or more than 36.5 mm if the electron gun and pin-circle stem could not fit into a smaller diameter, as shown by the Applicant in figure 1. Further, if limitations required a shorter overall length of the display tube, it would be obvious to one of ordinary skill in the art to choose to increase the diameter of the second neck portion to shorten the overall length of the display tube.

In regards to claim 7, Nose in view of Van Engelshoven teach all of the recited limitations of claim 5 (above).

Nose further teaches in figure 9 that the stem portion comprises a plurality of pins for supplying voltages to electrodes of the electron gun and the plurality of pins are arranged in a circle.

Both Nose and Van Engelshoven are silent to the pins having a specific diameter of 15.12mm.

However, Nose teaches in column 3 lines 17-24, that the stem pins have a diameter of 15.24 mm and this corresponds to the stem mounds, which are about 3.0 mm in diameter.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 5 (above), further wherein the stem portion includes a plurality of pins for supplying voltages to electrodes of the electron gun and the plurality of pins are arranged in a circle having a diameter of 15.12 mm, since the pin diameter of 15.12 mm is well known in the art and further, smaller stem mounds can allow for a smaller diameter, which is one skilled in the art realizes that this is advantageous.



In regards to claim 8, Nose et al discloses in figure 7, a projection tube comprising a panel (20) which forms a phosphor screen (23) on an inner surface thereof, a funnel (22), a neck portion (21) and a stem portion (14) which seals the neck portion, a deflection yoke which deflects the electron beams is mounted on the first neck portion having the first neck outer diameter, and the electron gun emits a single electron beam to the phosphor screen (Bs). Nose further discloses in figure 3, the neck has a first portion connected to the funnel portion and has a first neck outer diameter (D), and a second neck portion constitutes a portion which accommodates an electron gun and has a second neck outer diameter (D'). Further, the first neck outer diameter is set smaller than the second neck outer diameter.

Nose is silent to a maximum operating voltage of the electron gun is set to equal to or more than 25 kV.

However, Van Engelshoven et al. teaches in column 4 lines 7-29 that the last electrode (45) operates at 30-35 kV, and this inhibits spherical aberrations.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nose's maximum operating voltage of the electron gun to 25kV, since it is well known in the art that inhibiting spherical aberrations is desired.

In regards to claim 10, Nose in view of Van Engelshoven teach all of the recited limitations of claim 8 (above). Further, Nose teaches in column 3 lines 17-42, that when the first neck outer diameter is less than 29.1mm, this configuration can prevent occurrence of cracks in the fused portion of the stem.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 1 (above), further wherein the first neck outer diameter is set to equal to or less than 29.1 mm, since it is well known in the art that preventing cracks in the fused portion of the stem is desired.

In regards to claim 11, Nose in view of Van Engelshoven teach all of the recited limitations of claim 10 (above).

Neither Nose or Van Engelshoven specifically teach an second neck portion outer diameter set to equal to or more than 36.5 mm.

However, Nose does teach in column 3 lines 25-29, that a larger second neck portion is required to accommodate a higher-powered large pin-circle stem into a second neck portion, and a portion of the electron gun, without cracking. Nose further teaches in column 7 lines 37-41, that the diameter  $D'$  of the expanded fuse portion (second neck portion) is about 1.1 times greater then the outside diameter  $D$  of the neck (first neck portion). In table 1, Nose teaches that the diameter  $D$  is 29.1 mm, which makes  $D'$  be about 32.0.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 10 (above), further wherein the second neck outer diameter is set to equal to or more than 36.5 mm. The second neck portion outer diameter is dependent on the interior structure of the electron gun, and the pin-circle. One of ordinary skill in the art would be motivated to choose to design a second neck outer diameter equal to or more than 36.5 mm if the electron gun and pin-circle stem could not fit into a smaller diameter, as shown by the Applicant in figure 1.

In regards to claim 12, Nose in view of Van Engelshoven teach all of the recited limitations of claim 8 (above).

Nose further teaches in column 3 lines 17-42, that when the first neck outer diameter is set to 29.1mm, this configuration can prevent occurrence of cracks in the fused portion of the stem.

Neither Nose nor Van Engelshoven specifically teach a second neck portion outer diameter set to 36.5 mm.

However, Nose does teach in column 3 lines 25-29, that a larger second neck portion is required to accommodate a higher-powered large pin-circle stem into a second neck portion, and a portion of the electron gun, without cracking. Nose further teaches in column 7 lines 37-41, that the diameter  $D'$  of the expanded fuse portion (second neck portion) is about 1.1 times greater than the outside diameter  $D$  of the neck (first neck portion). In table 1, Nose teaches that the diameter  $D$  is 29.1 mm, which makes  $D'$  be about 32.0.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 8 (above), further wherein the second neck outer diameter is set to 36.5 mm. The second neck portion outer diameter is dependent on the interior structure of the electron gun, and the pin-circle. One of ordinary skill in the art would be motivated to choose to design a second neck outer diameter set to 36.5 mm if the electron gun and pin-circle stem could not fit into a smaller diameter, as shown by the Applicant in figure 1. Further, if limitations required a shorter overall length of the

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display tube, it would be obvious to one of ordinary skill in the art to choose to increase the diameter of the second neck portion to shorten the overall length of the display tube.

In regards to claim 13, Nose in view of Van Engelshoven teach all of the recited limitations of claim 11 (above).

Nose further teaches in figure 9 that the stem portion comprises a plurality of pins for supplying voltages to electrodes of the electron gun and the plurality of pins are arranged in a circle.

Both Nose and Van Engelshoven are silent to the pins having a specific diameter of 15.12mm.

However, Nose teaches in column 3 lines 17-24, that the stem pins have a diameter of 15.24 mm and this corresponds to the stem mounds, which are about 3.0 mm in diameter.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 11 (above), further wherein the stem portion includes a plurality of pins for supplying voltages to electrodes of the electron gun and the plurality of pins are arranged in a circle having a diameter of 15.12 mm, since the pin diameter of 15.12 mm is well known in the art and further, smaller stem mounds can allow for a smaller diameter, which is one skilled in the art realizes that this is advantageous.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nose et al. (USPN 5,994,830) in view of Van Engelshoven et al. (USPN 6,271,625) in further view of Uchida et al. (USPN 5,909,079).

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In regards to claim 3, Nose in view of Van Engelshoven teach all of the recited limitations of claim 1 (above).

Both Nose and Van Engelshoven are silent to a maximum cathode current is set to equal to or more than 4 mA.

However, Uchida teaches in column 6, lines 23-31, that the beam current value is set to 4mA, and this is done to correctly measure and analyze the relationship between the lens diameter and the optimum diameter of the electron beam.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a projection tube according to claim 1 (above), further wherein the maximum cathode voltage is set to equal to or more than 4 mA, since it is known in the art that PRT's need to be very bright, and 4 mA is sufficient to adequately activate the panel phosphors.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nose et al. (USPN 5,994,830) in view of Van Engelshoven et al. (USPN 6,271,625) in further view of Konda et al. (USPN 6133685).

In regards to claim 9, Nose in view of Van Engelshoven teach all of the recited limitations of claim 8 (above).

Both Nose and Van Engelshoven are silent to a convergence yoke mounted on the second neck portion having the second neck outer diameter.

However, Konda teaches in figure 1, that a convergence yoke (8) is positioned on the neck portion so as to pass through the anodic electrode 1, which is equivalent to the Applicant's

second neck portion. Further, Konda teaches in column 4 lines 26-35, that this configuration prevents the efficiency of modulation of electron beam trajectories from being deteriorated also in a high-frequency modulation zone, and the heat generation at the anodic electrode 1a can be also restrained.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a convergence yoke mounted on the second neck portion having the second neck outer diameter, since it is well known in the art that efficiency of modulation of the electron beam trajectories and the reduction of heat generation is desirable. Further, as mentioned above, the second neck portion outer diameter is dependent on the interior structure of the electron gun, and the pin-circle. One of ordinary skill in the art would be motivated to choose to design a second neck outer diameter set to 36.5 mm if the electron gun and pin-circle stem could not fit into a smaller diameter, as shown by the Applicant in figure 1. Further, if limitations required a shorter overall length of the display tube, it would be obvious to one of ordinary skill in the art to choose to increase the diameter of the second neck portion to shorten the overall length of the display tube.

### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (703) 305-7198. The examiner can normally be reached on 7.30 - 4:30, M-F.

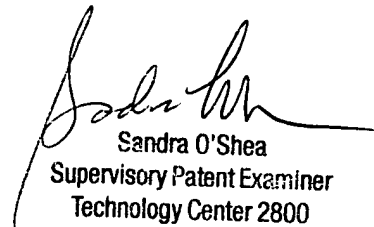
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

pjm  
December 11, 2002



Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800